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PHYSICAL ACTIVITY DURING CONVALESCENCE FROM RHEUMATIC FEVER*

Emphasis on the restriction of physical activity during convalescence from rheumatic fever has become traditional over a long period of time. Even today, there are few scientific data to indicate the amount of physical activity that can be allowed safely to either children or adults convalescing from an acute attack of the disease. This lack is particularly felt in the instance of patients who have had carditis. Fifteen years ago a prolonged convalescent period in a protected environment in which physical activity was usually limited served to prevent new streptococcal infections with their accompanying risk of rheumatic recurrences. The availability and proved effectiveness of prophylaxis has eliminated the need for such long convalescence on this basis. Patients no longer remain in a state of semi-invalidism for many months, or even years, but are mobilized to full activity within a few months after the active phase of the disease has ended.

The goal of convalescence is to restore the patient to his previous life as quickly as possible; this phase of the program requires the maintenance of prophylaxis against streptococcal infections and time must be allowed for adaptation to any cardiac damage which may have been caused by the disease. Real and practical limitations must be kept in mind throughout the period of convalescence and rehabilitation following active rheumatic fever. It is sometimes not possible to rehouse the patient, just as it is impossible to alter the make-up of his family or to change his native abilities. In returning him to active life, practical factors such as these, in combination with the degree and kind of existing heart disease, determine the extent to which success may be attained. In recent years the outlook for patients with rheumatic fever has improved considerably. This may be due in part to a decrease in the severity of the disease and to improving economic conditions generally, but it is also partly attributable to the early treatment of streptococcal infections in the general population and to the maintenance of adequate prophylaxis against them in people who have had rheumatic fever.

*From Irvington House, Irvington-on-Hudson, N. Y., and New York University College of Medicine, New York, N. Y.

Medical Criteria for Convalescence

By definition, in any nonchronic illness convalescence begins when the acute phase has subsided. In the instance of rheumatic fever, an observation period of approximately one month, or ideally of two months, the so-called rebound period, is advisable.[1,2] If, during this period of two months the patient has shown no clinical or laboratory evidence of disease activity, it can be stated with assurance that the attack of rheumatic fever has subsided. Rheumatic activity after this two-month period probably constitutes a recurrent attack following an intercurrent streptococcal infection.[3]

Although there is no exact method or specific diagnostic laboratory test which can be used to determine the end of disease activity, careful evaluation of the clinical and laboratory data usually serves adequately to permit proper management of the patient. In most instances, antirheumatic therapy, salicylates or steroids, should have been discontinued for at least one month, and there should be no clinical evidence of rheumatic activity. The temperature should have been normal for a month, and the sleeping pulse rate should not be elevated. The C-reactive protein should have been absent from the serum during this period unless it appeared in response to known intercurrent illness or injury, and the erythrocyte sedimentation rate should, in most cases, be within normal limits.[4]

Convalescence ends when the patient returns to his state of maximal function, the level of which will be determined by the amount and type of existing heart disease and by the family and work situations surrounding his return to life in the community.

Prescription for Physical Activity in Specific Situations

There are no adequate, fixed rules which can help the physician to decide on the degree of physical activity that may safely be allowed a patient convalescing from rheumatic fever. Whether the convalescent period is spent in a hospital, at home, or in a convalescent home or institution, the decision should be based on the individual history and picture of the illness.

Convalescent rheumatic patients can, however, be divided with the aid of the Jones Criteria into several categories with outstanding differences which will influence the physical activity prescription:[5]

1. Patients who have had rheumatic fever with any combination of major or minor manifestations (excluding chorea) without carditis.—Patients in this category, once they have passed through the period of close observation following the acute attack, may be allowed unlimited physical activity. They will pass rapidly from the mild activities allowed during the observation or rebound period into convalescence. The duration of the latter will be determined by the rate at which the patient is able to resume his normal activity. Children whose disease falls within this category do not generally need care in a convalescent institution on a medical basis. Adults in this group may actually suffer psychologically from being sent to one, since such institutional care may enhance the development of cardiac neurosis.

2. Patients with chorea.—Chorea is usually a late manifestation of rheumatic fever which is seen almost exclusively in children and adolescents. The limits of physical activity for these patients will be imposed by individual tolerance which can best be determined by a trial of activity. If the patient becomes disturbed, frustrated, or unduly excited by certain physical activities, exacerbation of the chorea often results. It is not usually the physical activity itself which aggravates the symptoms and signs of chorea, but the accompanying emotional response. For this reason, physical activities should then be temporarily restricted. In the usual instance of the patient with chorea, the convalescent stage ends when the choreiform movements end. Although chorea often appears so late in the course of rheumatic fever that active carditis may have subsided, the cardiac status must be considered in guiding a choreic child through convalescence.[6,7]

3. Patients with no heart disease, or with potential heart disease, who had carditis during the period of acute rheumatic fever.—In our practice, both these groups of patients have in common the Therapeutic and Functional Classification of IB* for six months following the end of convalescence.[8] At the end of that time, many patients from both categories will be classified as "No Heart Disease." Some will be carried as "Potential Heart Disease," and the remaining group will have the diagnosis "Rheumatic Heart Disease (Inactive)" (usually mitral insufficiency) and, therefore, the classification will be at least IB. During convalescence and the six-month period following its termination, these patients should be allowed normal physical activity except for very strenuous activities such as competitive sports. If a patient particularly likes athletics for fun but is not dominated by the need to win or excel, it may be safe, in some instances, to allow him to participate.

The patient whose cardiac classification falls in either of the two categories under consideration is usually able to return to normal physical activity quickly. Gradual increase of activity should be encouraged during the period of close observation when rebounds are most likely to manifest themselves. Thus, when the convalescent period begins, these patients are usually functioning at a level nearer their physical capacity than are patients with definite heart disease.

These patients frequently manifest changing murmurs. Some murmurs disappear in the six months following convalescence, some permanently, and some reappear in the same or in the next six-month period. When a nonfunctional murmur disappears and then reappears, it usually remains as an established organic murmur. It is important to realize in this convalescent situation that changing murmurs do not, in themselves, represent persistent active carditis and need not influence the prescription for physical activity. By the same token, they should not be taken as the signal for resumption of antirheumatic therapy, or as evidence of impaired functional capacity of the patient. More often than not, these changes in murmurs are reflections of the

*CLASSIFICATION OF PATIENTS WITH HEART DISEASE

(From Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Blood Vessels, Prepared by the Criteria Committee of the New York Heart Association, Inc., Fifth Edition, 1953.)

Functional Capacity

Class I. Patients with cardiac disease but without resulting limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea or anginal pain.

Class II. Patients with cardiac disease resulting in slight limitation of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea or anginal pain.

Class III. Patients with cardiac disease resulting in marked limitation of physical activity. They are comfortable at rest. Less than ordinary activity causes fatigue, palpitation, dyspnea or anginal pain.

Class IV. Patients with cardiac disease resulting in inability to carry on any physical activity without discomfort. Symptoms of cardiac insufficiency or of the anginal syndrome are present even at rest. If any physical activity is undertaken, discomfort is increased.

Therapeutic Classification

Class A. Patients with a cardiac disease whose physical activity need not be restricted.

Class B. Patients with cardiac disease whose ordinary physical activity need not be restricted, but who should be advised against severe or competitive physical efforts.

Class C. Patients with cardiac disease whose ordinary physical activity should be moderately restricted, and whose more strenuous efforts should be discontinued.

Class D. Patients with cardiac disease whose ordinary physical activity should be markedly restricted.

Class E. Patients with cardiac disease who should be at complete rest, confined to bed or chair.

underlying development or regression of fibrosis of the involved valves.

Aside from the need for maintenance of good prophylaxis, frequent medical examinations are indicated to evaluate cardiac status.

4. Patients with heart disease who had carditis during the period of acute rheumatic fever.— The prescription for physical activity of patients in this group depends on functional capacity and heart size rather than on the specific valvular lesions. A patient with multiple valvular lesions may have a greater functional capacity than one with a single valve lesion. For example, a patient with severe aortic insufficiency, who has accompanying peripheral dynamic manifestations, may have less functional capacity than another patient with mitral insufficiency and stenosis and aortic insufficiency without the peripheral hemodynamic changes.

The most practical guide in evaluating the functional capacity of patients in this group is provided by the Functional Classification of the New York Heart Association.[8]* This classification is based on the response of the patient to physical activity.

During convalescence from rheumatic fever, some restriction of physical activity is advisable in this group. In our experience, children need supervised activities because they tend to be overactive in the early phase of convalescence. Adults, on the other hand, often restrict themselves below their functional capacity.

The maximum level of physical activity advisable in this convalescent group is described by the Functional and Therapeutic Classification IB. The majority of patients convalescing from rheumatic fever can reach this level and need abstain only from hard physical labor or competitive sports. Gradual increase of physical activity during the convalescent period provides an opportunity to determine the capacity of the patient for such activity. This technique will help identify the patient whose tolerance is limited before he engages in activities which are beyond his capacity. Close medical observation is essential to determine what level of activity can be reached without the appearance of untoward signs or symptoms, particularly those of heart failure.

Resumption of Active Life in the Community

The majority of patients who have had an attack of rheumatic fever can return to normal lives without restricting activities. In adults, a recent report by Engleman, et al., indicates that 80 per cent of a group of 135 men who had rheumatic fever while in the Armed Services returned to normally active lives.[9] Only 10 per cent had to avoid competitive sports and heavy physical labor, and about 10 per cent missed some work because of heart disease. In this group of 135 men, 23.7 per cent had heart disease and none was disabled by it at the time of follow-up four to eight years after the attack of acute rheumatic fever. In a pediatric group of 407 patients, ages six to fifteen, admitted to the Irvington House Rheumatic Fever Prophylaxis Study during its first two years, 236, or 58 per cent, had no heart disease and were leading lives free from physical restriction. One hundred seventy-one, or 42 per cent, of this group had heart disease (exclusive of potential heart disease), but only about 25 per cent of the total group of 407 patients had some restriction of physical activity. Some of these patients had had more than one attack of rheumatic fever.

There is no evidence to indicate that pediatric convalescent rheumatic fever patients receive any practical benefit from prescribed programs of calisthenics such as those carried out in the Army Air Force during World War II. Such planned calisthenic programs can be based on scientific energy cost studies.[10] Valuable as such studies are, a more practical aid in prescribing physical activities for patients convalescent from rheumatic fever is provided by the Functional and Therapeutic Classifications of the New York Heart Association.[8] *

Conclusions

1. There are no fixed rules to govern the prescription of physical activity during convalescence from rheumatic fever. Each patient should be considered individually.

2. The physical activity of any convalescent rheumatic fever patient with heart disease should be *gradually* increased to his level of maximal capacity. He should never be forced beyond a level of activities at which symptoms appear. Patients without heart disease can usually reach their maximal level of activity more quickly than those in the cardiac group.

3. The majority of patients who have recovered from a first attack of rheumatic fever are able to carry on ordinary physical activities during and after convalescence.

4. The single most important factor in keeping the "rheumatic" individual functioning in the community at maximal capacity is adequate, continuous prophylaxis against recurrent streptococcal infections.

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*See footnote, Page 362.

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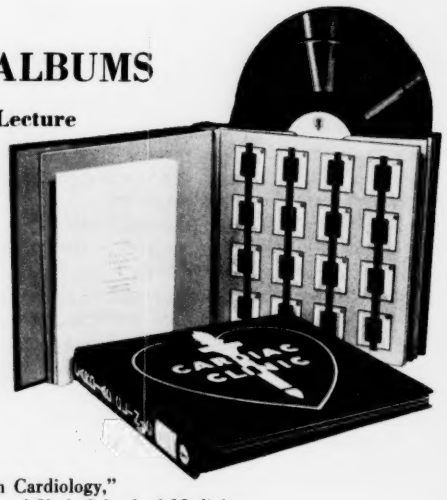

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